Amendments To The Claims

The listing of claims presented below will replace all prior versions, and listings, of claims in the application.

Listing of claims:

Claims 1-58. (Cancelled)

59. (New) An infrastructure system comprising:

apparatus including any one or more of transponders and repeaters and coupler arrangements and analog signal gains for a two way and/or one way telecommunication platform using a communication medium with inconsistent properties, and one or more interfaces adapted to provide global facilitation of said communication medium to behave similarly to transmission line-based systems such that stable and consistent frequency band limited transfer properties and noise properties, comparable to any of transmission lines and line of sight wireless transmission with bandpass filtering, are achieved thereby enabling any of a D/A and an A/D physical layer (PHY) of any telecommunication platform to be adapted to or included in the infrastructure system via the interfaces.

60. (New) An infrastructure system according to claim 59, wherein said one or more interfaces are adapted to interface with a cable modem communication platform PHY having essentially similar characteristics to a transmission line.

61. (New) An infrastructure system according to claim 59, wherein said one or more interfaces are adapted to provide any one or more different arrangements to enable transmission line-like performance where the arrangements depend on the different

signal path anomalies to be compensated, equalized or cancelled while signal dynamic balance is controlled to preserve signal-to-noise ratio and large signal handling.

62. (New) An infrastructure system according to claim 59, wherein said one or more interfaces are active, powered devices at all or most physical points in between distance paths to facilitate the conditioning of the medium towards performing like a transmission line-based system.

63. (New) An infrastructure system according to claim 59, wherein said one or more interfaces are active, powered devices inserted at physical points on distance paths to facilitate the conditioning of the medium towards performing like a transmission line-based system.

64. (New) An infrastructure system according to claim 59, wherein said one or more interfaces are active devices that can be accessed through analog interfaces as when interconnected to a telecommunication PHY.

65. (New) An infrastructure system according to claim 59, wherein said apparatus uses a superregenerative or switched regenerative amplifier at a suitable intermediate frequency through bi-directional filtering and bi-directional super heterodyne mixing when necessary for same or different frequency band amplification.

66. (New) An infrastructure system according to claim 59, wherein said apparatus uses a super regenerative or switched regenerative amplifier at a suitable intermediate frequency when necessary for same or different frequency band amplification, and is connected to the medium through separated ports through one or more frequency mixers and through individual input and output amplifiers and filters, and is connected to the medium as a one port to as a multi port to utilize existing attenuation as port

isolation at high frequencies.

67. (New) An infrastructure system according to claim 59, wherein said apparatus uses a super regenerative or switched regenerative amplifier at a high intermediate frequency through bi-directional filtering and bi-directional super heterodyne mixing when necessary for same or different frequency band amplification to allow very high bandwidths.

68. (New) An infrastructure system according to claim 59, wherein said apparatus uses super regenerative amplification at a high intermediate frequency and is connected to the medium through separated ports through one or more frequency mixers and through individual input and output amplifiers when necessary for same or different frequency band amplification.

69. (New) An infrastructure system according to claim 59, wherein said apparatus uses super heterodyne amplification at a suitable intermediate frequency through at least two frequency mixers and frequency filtering connected to the medium through separated ports to utilize existing port isolation and attain stability when necessary for same frequency band amplification.

70. (New) An infrastructure system according to any one of claims 59, 65, 66, 67, 68, 69 wherein said apparatus uses active devises adaptable to frequency, phase and amplitude linearity requirements of commonly used modulation types and time and frequency division multiplexed systems.

71. (New) An infrastructure system according to claim 59, adapted to sustain information bandwidth.

72. (New) An infrastructure system according to claim 59, adapted to facilitate the use of

substantially higher frequency bands and carrier frequencies than the medium would otherwise allow.

73. (New) An infrastructure system according to claim 59, adaptable to accommodate a plurality of modulation types, including modulation types requiring high linearity.

74. (New) An infrastructure system according to claim 59, adaptable to modulation types which include one or more of at least the modulation types QPSK, QAM, OFDM, CDMA and DSSS.

75. (New) An infrastructure system according to claim 74, adaptable to a plurality of telecommunication standards platforms physical layer PHY which include one or more of the standards Ethernet, DOCSIS, EURODOCSIS, 802.11x, Wimax, GSM, as well as being adaptable to any proprietary telecommunications platform physical layer PHY.

76. (New) An infrastructure system according to claim 59, is adaptable through up and down frequency conversions between the infrastructure system interfaces and the telecommunication standard platform PHY.

77. (New) An infrastructure system according to claim 59, that utilizes inherent system attenuation from lossy cables and junction mismatchings to improve the infrastructure system performance through a global presence of active and passive compensation in one or more of said apparatus.

78. (New) An infrastructure system according to claim 59, wherein one or more of said apparatus uses inherent system attenuation properties to aid stability and noise conditions with super regenerative or super heterodyne repeaters as two port amplifiers capable of accepting inherent isolation.

79. (New) An infrastructure system according to claim 59 that uses power lines as the

system medium or infrastructure.

80. (New) An infrastructure according to claim 59, adaptable to non-standard proprietary telecommunication platforms which may include PHY of PLC platforms.

81. (New) An infrastructure system according to claim 59 that the system includes substantially all distribution panels, fuse panels, distribution boxes, junctions, junction boxes, sub stations along the signal traveling paths as hosts and power sources for signal repeaters and coupler arrangements to facilitate the global conditioning of the grid into a transmission line similar infrastructure.

82. (New) An infrastructure system according to claim 59 that includes the use of any conductors of any of ground buried cables, air mounted cables and bare wires in differential mode using at least two conductors as pair.

83. (New) An infrastructure system according to claim 59 that includes the use of air mounted conductors of any of power grid cables and medium voltage cables or wires or high voltage cables or wires in Lecher or waveguide mode using very high carrier frequencies.

84. (New) An infrastructure system according to claim 59 that includes the use of any of high voltage distribution, medium voltage grid, street light and control grid, low voltage grid.

85. (New) An infrastructure system according to claim 59 that uses active, powered devices in all or most junction points in the power grid to facilitate the conditioning of the grid towards performing like a transmission line based system.

86. (New) An infrastructure system according to claim 59 that uses inherent attenuation in cable or wire junctions to form multi-ports with mutual isolation to aid stability and

noise conditions with super regenerative as well as super heterodyne repeaters.

87. (New) An infrastructure system according to claim 59 that uses a coupler to a high or medium voltage, arranged as a magnetic loop antenna being able to provide a galvanic isolated differential coupling to at least two conductors of the high or medium voltage.

88. (New) An infrastructure system according to claim 59 that uses a coupler to a high or medium voltage, arranged using the shield of the high or medium voltage cable as a capacitive coupler, using ferrite clamp improvement on the shield grounding and preferably a ferrite toroid improvement outside the shield at a distance from the shield grounding, and where signal connection is made between ground and the shield end or though a winding on one or both of the ferrites.

89. (New) An infrastructure system according to claim 88 that uses two such coupler arrangements to provide differential signal coupling and thus enabling improved signal power transfer and signal dynamics, reduced emissions and improved immunity.

90. (New) An infrastructure system according to claim 59 that uses a capacitive voltage measurement probe of an Elastimold or similar shielded cable assembly for a high or medium voltage system, for signal coupling.

91. (New) An infrastructure system according to claim 90 that uses two such probe arrangements to provide differential signal coupling and thus enabling improved signal power transfer and signal dynamics, reduced emissions and improved immunity with Elastimold or similar shielded cable assemblies.

92. (New) An infrastructure system according to claim 91 that uses a matching device to avoid losses due to the high impedance and low capacitance of the capacitive high

voltage measurement probe in ELASTIMOLD or similar high or medium voltage assemblies.

93. (New) An infrastructure system according to claim 59 that uses fibre coax HFC similar arrangements to obtain any of accessing the infrastructure system at shorter intervals and binding together the infrastructure system, thereby enabling reductions of necessary communication distances and necessary gain cascades lengths on the low voltage power grid.

94. (New) An infrastructure system according to claim 59 that uses any of high voltage and medium voltage power lines to complement hybrid fibre coax HFC similar arrangements and to reduce the number of HFC similar nodes.

95. (New) An infrastructure system according to claim 59 that id adapted to allow D/A and A/D PHY master or headend equipment to be installed at any point to any locations in the infrastructure system.

96. (New) An infrastructure system according to claim 59, wherein said apparatus includes repeaters or transponders for customers premises equipment installed at or near a customer fuse panel, thus reducing emissions and improving immunity.

97. (New) An infrastructure system according to claim 59, wherein said apparatus is an arrangement in distribution panels or distribution boxes or fuse panels or fuse boxes using repeaters or transponders to link signals between coupler on ingoing supply cable with couplers on outgoing cables to reduce effects from inherent losses, reflections and mismatches and to utilize inherent attenuation in the distribution or junction system to provide isolation between in port and out ports and between out ports.

98. (New) An infrastructure system according to claim 59, wherein said apparatus

includes substations linked together on medium voltage power lines to serve a purpose similar to an analog fibre link.

99. (New) An infrastructure system according to claim 59, wherein any of transformers and sub stations among the apparatus are adapted for facilitating routing of signals between a high voltage side and a medium voltage side through any of couplers, transponders, repeaters, cables, coaxial cables and fibre optic cables.

100. (New) An infrastructure system according to claim 59, wherein any of transformers and sub stations among the apparatus are adapted to facilitate routing of signals between a medium voltage side and a low voltage side through any of couplers, transponders, repeaters, cables, coaxial cables and fibre optic cables.

101. (New) An infrastructure system according to claim 59, wherein said apparatus is adapted to facilitate routing of signals between a high voltage side of a transformer and a low voltage side of the transformer by utilizing the transformer equivalent high frequency circuit properties to form a high frequency network for signals to pass through the transformer, by utilizing the high stray capacitance coupling between transformer sections using any of one phase rail and three phase rail and ground terminal and neutral terminal of the transformer in connection with external coupler and reactance.

102. (New) An infrastructure system according to claim 59, wherein said apparatus includes a wireless system node at any point in the system with an antenna and interfaced with a repeater or transponder as a node of the infrastructure system.

103. (New) An infrastructure system according to claim 102, wherein said node of the infrastructure system is an output node.

104. (New) An infrastructure system according to claim 102, wherein said node of the

infrastructure system is an input node.

105. (New) An infrastructure system according to claim 59, adapted for frequency shifting in any power line junction point to adapt to varying power cable characteristics.

106. (New) An infrastructure system according to claim 59, that enables the penetration of cables in long cable runs to insert repeaters or transponders with galvanic or non-galvanic couplers.

107. (New) An infrastructure system according to claim 59, wherein said apparatus is adapted to improve immunity properties at various physical positions using active cancellation of common mode noise from any of near field sources and far field sources by using sampling antennas or sampling probes for the common mode energy which aids identifying, characterizing and canceling common mode interference.

108. (New) An infrastructure system according to claim 59, wherein said apparatus is adapted to allow any suitable number of any of A/D and D/A headend equipment to be supplementary installed in any locations in the infrastructure system if economical.

109. (New) An infrastructure system according to claim 59, wherein said apparatus is adapted to incorporate medium voltage non-galvanic high frequency interfacing by using a pair of fibre optic connections to a pair of repeaters or transponders preferably optically powered and galvanically or non-galvanically installed separately with mutual galvanic isolation on at least two medium voltage conductors to provide differential, low emission and high immunity interface to medium voltage power lines as well as high voltage power lines.

110. (New) An infrastructure system according to claim 59, wherein said apparatus is adapted to incorporate medium voltage to low voltage transitions through coaxial

cables.

111. (New) An infrastructure system according to claim 59, wherein said apparatus is adapted to incorporate repeater nodes that have built in intelligence.

112. (New) An infrastructure system according to claim 111, wherein said apparatus is adapted to incorporate repeater nodes that can interface remotely interrogated sensors.

113. (New) An infrastructure system according to claim 59, wherein said apparatus allows a suitable number of master units installed at different locations in the infrastructure.

114. (New) An infrastructure system according to claim 59, that it is a two-way system and can utilize separate transponder or repeater functions in separate frequency bands in order to achieve an infrastructure system for more than one signal transmission direction.